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Appl. No. 10/643,669
Docket No. 9346
Amdt. dated 8 July 2008
Reply to Office Action mailed on 9 January 2008
Customer No. 27752

REMARKS

Claim Status

Claims 1, 3-19, 23, and 25-28 are pending in the application, of which all are rejected. Herein, Applicants amend no claims; cancel no claims; and add no claims; WHEREUPON Claims 1, 3-19, 23, and 25-28 remain to be examined. No additional claims fees are believed to be due.

Alleged Obviousness over Clack, in view of Cannon, Hill, and Birdsong

Claims 1, 3, 5-7, 12-14, 16-17, 19, and 26-27 are rejected under 35 USC §103(a) as allegedly being unpatentable over USPN 4,997,553 ("Clack"), in view of USPN 6,881,348 ("Cannon"), USPN 1,782,850 ("Hill"), and USPN 5,131,277 ("Birdsong"). Applicants respectfully traverse the rejection as applied to the remaining amended claims for the reasons set forth below.

The Office Action concedes that Clack fails to disclose a water filter material comprising filter particles consisting of mesoporous activated carbon and the F-BLR of the claimed filter. The Office Action states that Cannon teaches a column, i.e. "a housing", having an inlet and an outlet and a filter material disposed in the column comprising a plurality of mesoporous activated carbon filter particles loaded with a cationic polymer. The Action also states that Hill teaches that bacteria are removed from water by activated carbon. The Action asserts that the use of known mesoporous activated carbon particles for bacteria removal would have been obvious to the skilled person to yield the predictable result of providing potable water by employing the sheer bacteria removal capability of activated carbon, as suggested by Hill. The Office Action further asserts that the bacteria removal capability of mesoporous activated carbon is an inherent property of activated carbon.

Notably, Cannon does not teach mesoporous wood activated carbon filter particles for bacteria and virus removal. Cannon's deficiency is not remedied by Hill. Hill discloses a method comprising stirring a suspension of activated carbon in water by "giv[ing] the body of liquid in the settling vessel a slow rotational movement, say, of the

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order of one or two turns per hour" (col. 2, lines 98-100). Although Hill states that carbon, while lacking bactericidal properties, is able to remove bacteria (col. 2, lines 56-58), Hill goes on to say that because of the difficulty in freeing water of added carbon, the use of carbon remains impracticable (col. 2, lines 60-73). Hill attempts to address this impracticability with the disclosed stirring technique. However, Hill (and Birdsong, which teaches a certain flow rate) are void of any mention, teaching, suggestion, or motivation to provide, as recited in Applicants' claims, a low-pressure water filter for treating untreated drinking water, comprising, among other things, a filter material formed at least in part from a plurality of filter particles consisting of mesoporous activated carbon, where the sum of the sum of the mesopore and macropore volumes of the filter particles is between about 0.2 mL/g and 2 mL/g; wherein mesopore means an intra-particle pore having a diameter between 2 nm and 50 nm, and macropore means an intra-particle pore having a diameter greater than 50 nm, wherein the filter is operable to remove microorganisms.

Applicants submit that they have surprisingly found that mesoporous activated carbon, as claimed, is useful in the removal of bacteria and viruses from water. Applicants demonstrate this, e.g. in the results shown in Figures 7a and 7b, where the performance of a filter according to the invention (mesoporous RGC) is compared to that of a conventional filter (microporous coconut). As can be seen in Fig. 7a, the inventive filter is effective in removing *E. coli* for about 240 L of cumulative water volume, whereas the conventional filter fails at less than 40 L. As can be seen in Fig. 7b, the inventive filter is effective in removing MS-2 for about 80 to 100 L of cumulative water volume, whereas the conventional filter fails at less than 20 L.

Applicants submit that the Office Action misapplies its assertion that the use of mesoporous activated carbon particles for bacteria removal was known and therefore it would have been obvious to the skilled person to yield the predictable result of providing potable water by employing the sheer bacteria removal capability of activated carbon. As demonstrated by Applicants, all activated carbons are not the same, and cannot simply be interchanged with a reasonable expectation of success. Applicants' claims particularly point out and distinctly claim certain activated carbons for use in filter material to remove bacteria and viruses.

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Further, the Office Action cites *Ex parte Masham* to support the argument that the recitation "the filter is operable to remove microorganisms..." is an intended use and that as used in Applicants' claims, it does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. However, the Office Action misapplies this case law, as the pending claims are rejected as being allegedly obvious, not as allegedly lacking novelty. *Masham* does not address obviousness at all.

For these reasons, Applicants submit that the obviousness rejections are improper and should be withdrawn.

Alleged Obviousness over Clack, in view of Cannon, Hill, and Birdsong (the "Base References") in further view of Additional References

Claim 4 is rejected under 35 USC §103(a) as allegedly being unpatentable over the Base References in further view of USPN 5,371,221 ("Sipos"). Claim 8 is rejected under 35 USC §103(a) as allegedly being unpatentable over the Base References in further view of USPN 3,670,892 ("Baerg"). Claims 9-10 are rejected under 35 USC §103(a) as allegedly being unpatentable over the Base References in further view of USPN 4,147,631 ("Deines") and USPN 3,268,444 ("Renn"). Claims 11 and 25 are rejected under 35 USC §103(a) as allegedly being unpatentable over the Base References in further view of Deines and USPN 3,333,703 ("Scavuzzo"). Claim 15 is rejected under 35 USC §103(a) as allegedly being unpatentable over the Base References in further view of USPN 4,681,677 ("Kuh"). Claim 18 is rejected under 35 USC §103(a) as allegedly being unpatentable over the Base References in further view of USPN 6,117,319 ("Cranshaw"). Claim 23 is rejected under 35 USC §103(a) as allegedly being unpatentable over the Base References in further view of USPN 5,707,518 ("Coates"). Claim 28 is rejected under 35 USC §103(a) as allegedly being unpatentable over the Base References in further view of USPN 6,123,837 ("Wadsworth"). Applicants respectfully traverse the rejection as applied to the remaining amended claims for the reasons set forth below.

Applicants renew their argument above as it relates to the Base References. Applicants submit that deficiencies of the Base References are not remedied by the

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teachings of any of the Additional References alone or in combination, and that Claims 4, 8-11, 15, 18, 23, 25, and 28 are non-obvious, at least by virtue of their dependence on Claim 1, which claims a low-pressure water filter for treating untreated drinking water, comprising, among other things, a filter material formed at least in part from a plurality of filter particles consisting of mesoporous activated carbon, where the sum of the sum of the mesopore and macropore volumes of the filter particles is between about 0.2 mL/g and 2 mL/g; wherein mesopore means an intra-particle pore having a diameter between 2 nm and 50 nm, and macropore means an intra-particle pore having a diameter greater than 50 nm, wherein the filter is operable to remove microorganisms.

For these reasons, Applicants submit that the obviousness rejections, as applied to the claims, is improper and should be withdrawn.

Conclusion

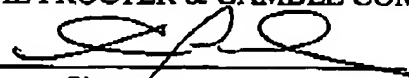
This response represents an earnest effort to distinguish the invention as claimed from the applied reference(s). In view of the foregoing, reconsideration of this application, and allowance of the pending claim(s) are respectfully requested.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is kindly invited to telephone the undersigned attorney.

Respectfully submitted,

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